

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



PCT

(43) International Publication Date
15 January 2004 (15.01.2004)

(10) International Publication Number
WO 2004/005700 A1

(51) International Patent Classification⁷: **F02M 57/02**,
47/02, 63/02, 63/00, 59/10

E. [GB/GB]; 9 Broadway Close, Witney, Oxon OX28 5GG
(GB).

(21) International Application Number:
PCT/GB2003/002670

(74) Agents: KELTIE, David, Arthur et al.; David Keltie Associates, Fleet Place House, 2 Fleet Place, London EC4M 7ET (GB).

(22) International Filing Date: 20 June 2003 (20.06.2003)

(81) Designated States (*national*): JP, US.
(84) Designated States (*regional*): European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR).

(25) Filing Language: English

Published:
— with international search report

(26) Publication Language: English

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(30) Priority Data:
0215488.8 4 July 2002 (04.07.2002) GB

(71) Applicant (*for all designated States except US*): DELPHI TECHNOLOGIES, INC. [US/US]; P.O. Box 5052, Troy, MI 48007 (US).

(72) Inventor; and

(75) Inventor/Applicant (*for US only*): MOORE, Matthew,



A1

WO 2004/005700 A1

(54) Title: FUEL INJECTION SYSTEM

(57) **Abstract:** A fuel injection system comprising an accumulator volume (10) arranged to be charged with fuel by means of a high pressure fuel pump (12) and for supplying fuel at a first injectable pressure level to a plurality of fuel injectors (22), wherein each injector (22) includes a delivery passage (16, 20), a valve needle (30), which is engageable with a seating to control fuel injection, and a control valve (26) for controlling fuel pressure within a control chamber (28) so as to control movement of the valve needle (30). The control valve (26) has a first operating position in which the control chamber (28) communicates with a low pressure drain and communication between the control chamber (28) and the delivery passage (16, 20) is prevented and a second operating position in which the control chamber (28) communicates with the delivery passage (16, 20) and communication between the control chamber (28) and the low pressure drain is established.